

What is claimed is:

1. A cam mechanism for a lens barrel, the mechanism comprising:

a cam ring comprising at a cam groove which is open
5 at one end;

a support ring supporting an imaging component, the support ring having a cam follower engageable with said cam groove and movable therein towards and away from said open end, wherein the support ring is movable along an
10 axis relative to the cam ring without rotation; and

a movement limiter configured to stop or limit disengagement of the cam follower from said open end of the cam groove.

2. The cam mechanism according to claim 1,
15 wherein said movement limiter is configured to stop the cam follower from moving out of said open end of the cam groove and disengaging therefrom.

3. The cam mechanism according to claim 1,
wherein said movement limiter stops the cam follower once
20 the cam follower has moved out of the open end of the cam groove and has been disengaged therefrom.

4. The cam mechanism according to claim 1,
wherein said movement limiter comprises mutually engageable stop surfaces respectively located on the cam
25 ring and support ring.

5. The cam mechanism according to claim 4,
wherein said movement limiter comprises:

at least one protuberance located on a peripheral
surface of said cam ring on which said cam groove is
5 located; and

at least one stop surface located on one of opposite
ends of said support ring in a direction of said axis and
configured to contact said protuberance.

6. The cam mechanism according to claim 4,
10 wherein said movement limiter comprises:

at least one protuberance located on a peripheral
surface of said support ring facing said cam ring; and

at least one stop surface located on one of opposite
ends of said cam ring in the direction of said axis and
15 configured to contact said protuberance.

7. The cam mechanism according to claim 1,
wherein a width of said open end is greater than a width
of the immediately adjacent portion of said cam groove.

8. The cam mechanism according to claim 1,
20 wherein the other end of said cam groove is open such that
said cam follower is insertable in the other end.

9. The cam mechanism according to claim 1,
wherein the cam groove is located on an outer peripheral
surface of said cam ring.

25 10. The cam mechanism according to claim 1,

wherein the cam mechanism is incorporated in a zoom lens.

11. The cam mechanism according to claim 11,
wherein said cam groove has a zooming section configured
to move said imaging component supported by said support
5 ring, and an accommodating section configured to
accommodate said support ring in a retracted position
thereof.

12. A cam mechanism of an imaging system,
comprising:

10 a linearly movable ring which supports an imaging
element, having a cam follower, and guided linearly in
an axis direction without rotating; and

a cam ring including a cam groove in which said cam
follower is engageable,

15 wherein said cam groove comprises:

an image control section configured to move said
linearly movable ring to an imaging position in said axis
direction; and

a standby section configured to move said linearly
20 movable ring to a standby position different from said
imaging position in said axis direction, one of opposite
ends of said cam groove having an open end such that a
portion of said cam groove including said open end serves
as said standby section, and

25 wherein said cam mechanism further comprises a

movement limiter configured to limit movement of said linearly movable ring relative to said cam ring in a direction of disengaging said cam follower from said cam groove through said open end in said standby section when
5 said cam follower is positioned in said standby section.

13. The cam mechanism according to claim 12, wherein said movement limiter is located on said linearly movable ring and said cam ring.

14. The cam mechanism according to claim 13,
10 wherein said movement limiter comprises:

at least one protuberance located on a peripheral surface of said cam ring on which said cam groove is located; and

at least one stop surface located on one of opposite
15 ends of said linearly movable ring in said optical axis direction and configured to contact said protuberance.

15. The cam mechanism according to claim 13, wherein said movement limiter comprises:

at least one protuberance located on a peripheral
20 surface of said linearly movable ring facing said cam ring; and

at least one stop surface located on one of opposite ends of said cam ring in said optical axis direction and configured to contact said protuberance.

25 16. The cam mechanism according to claim 12,

wherein a width of said standby section of said cam groove is greater than a width of said image control section of said cam groove.

17. The cam mechanism according to claim 12,
5 wherein the other of said opposite ends of said cam groove is a second open end such that said open end and said second open end are open on opposite end surfaces of said cam ring in said optical axis direction, respectively, wherein said cam follower is insertable into said cam
10 groove through said second open end.

18. The cam mechanism according to claim 12, wherein said imaging system is a retractable zoom lens which is retractable into a camera body;

wherein said imaging system includes a plurality of
15 optical elements including said imaging element;

wherein said image control section includes a zooming section configured to move said imaging element, which is supported by said linearly movable ring, in said axis direction relative to another imaging element
20 included in said plurality of optical elements, in a predetermined moving manner to change focal length; and,

wherein said standby section includes an accommodating section which accommodates said linearly movable ring in a retracted position thereof when said
25 imaging system is retracted into said camera body.

19. A cam mechanism of an imaging system,
comprising:

a linearly movable ring which supports an imaging
element, having a cam follower, and guided linearly in
5 an axis direction without rotating; and

a cam ring including a cam groove in which said cam
follower is engageable, said linearly movable ring
movable between an imaging position and a standby position
due to engagement of said cam follower with said cam groove
10 when said cam ring rotates,

wherein one of opposite ends of said cam groove
having an open end such that said cam follower is
disengaged from said cam groove through said open end when
said linearly movable ring is positioned in said standby
15 position , and

wherein said cam mechanism further comprises a
movement limiter configured to limit movement of said
linearly movable ring relative to said cam ring in a
direction of movement of said cam follower away from said
20 open end when said cam follower is disengaged from said
cam groove through said open end.

20. The cam mechanism according to claim 19,
wherein said movement limiter is located on said linearly
movable ring and said cam ring.

25 21. The cam mechanism according to claim 20,

wherein said movement limiter comprises:

at least one protuberance located on a peripheral surface of said cam ring on which said cam groove is located; and

5 at least one stop surface located on one of opposite ends of said linearly movable ring in said optical axis direction and configured to contact said protuberance.

22. The cam mechanism according to claim 20, wherein said movement limiter comprises:

10 at least one protuberance located on a peripheral surface of said linearly movable ring facing said cam ring; and

at least one stop surface located on one of opposite ends of said cam ring in said optical axis direction and
15 configured to contact said protuberance.

23. The cam mechanism according to claim 19, wherein opposite ends of said cam groove are open on opposite end surfaces of said cam ring in said optical axis direction, respectively, wherein said cam follower
20 is insertable into said cam groove through the other of said opposite ends of said cam groove.

24. The cam mechanism according to claim 19, wherein said imaging system is a retractable zoom lens which is retractable into a camera body, and

25 wherein said linearly movable ring is movable into

said standby section when said imaging system is retracted
into said camera body.